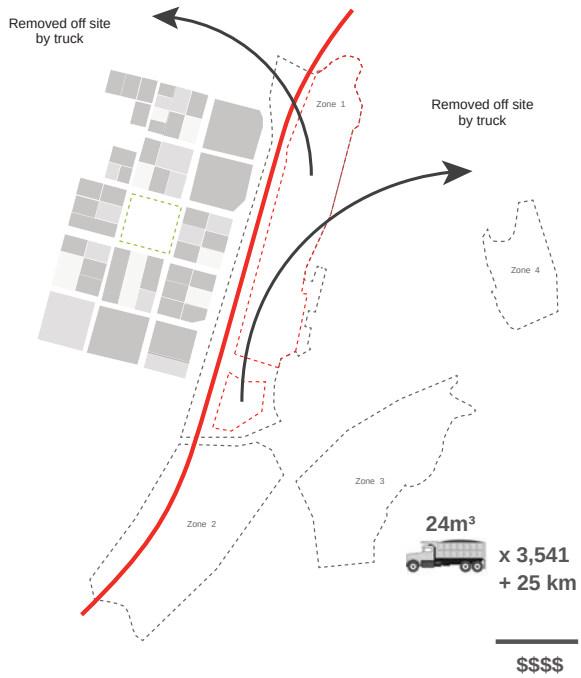
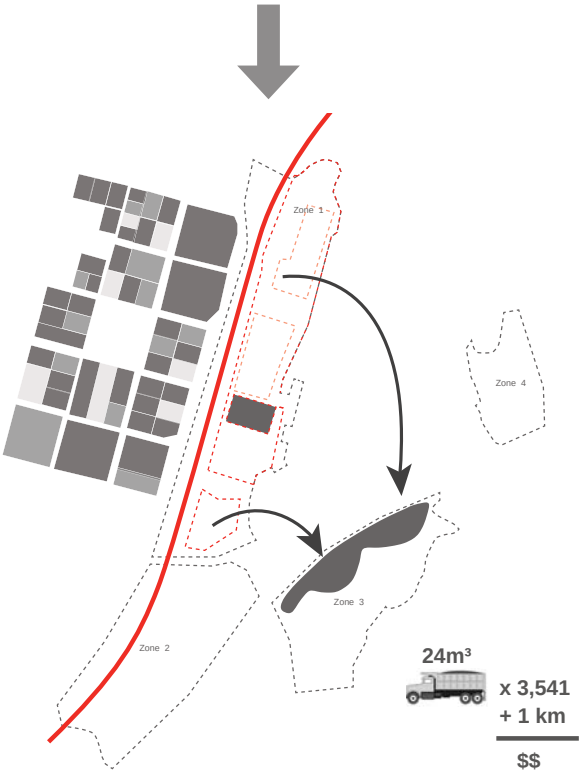

NONIMBY 2288



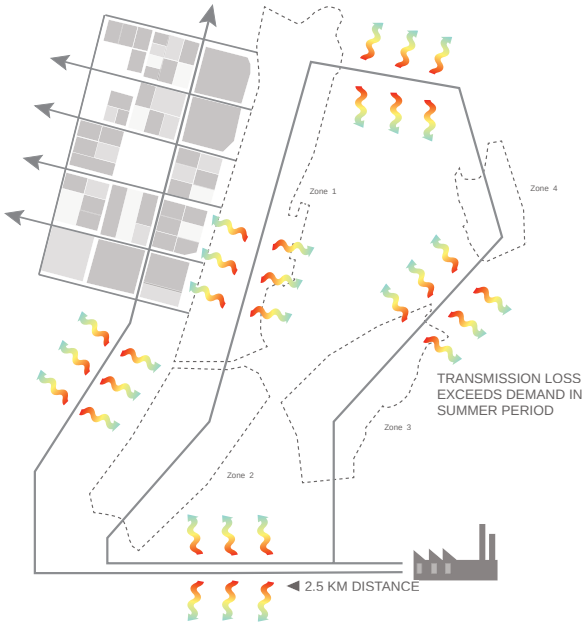



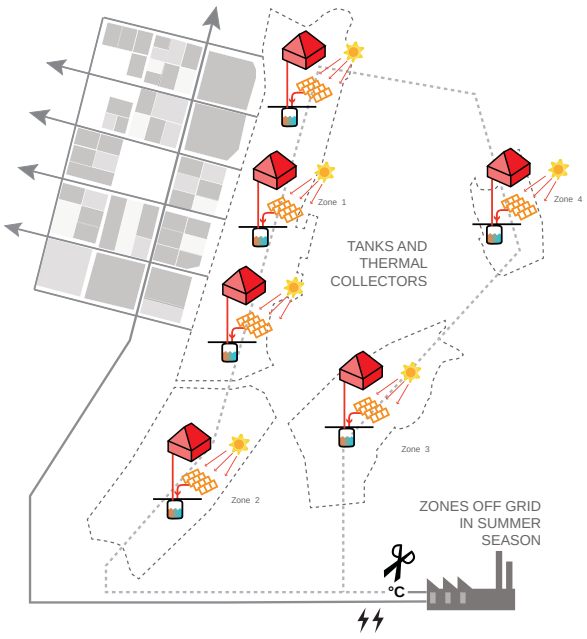

Mikkeli's status as a highly sustainable city makes it both rewarding and challenging to devise strategies for urban densification in the Satamalahti area. What kind of landscape, energy and urban design proposals should be implemented to achieve the goals of ecological construction which would exceed the already high standard of the city?

By deploying the concept of embodied energy and exergy we believe that there is room to optimize the performance of the new developments in the Satamalahti area. This proposal develops three strategies which can enhance the ecological and energetic performance of the new development zones through the optimization of the landscape, energy plan and urban design.

**1. Relocate + Recycle:**
**Contaminated soil on site**

The first move is to retain all contaminated soil on site, distributed between elevated plazas in Zone 1 and an enormous life-giving berm in Zone 3. By doing so, the scheme cuts down significantly on the petroleum and emissions generated by over 3,500 truckloads of soil proposed for relocation off-site. In this way, the preparatory stages of the project embody its broader environmental ambitions, save substantial hauling and disposal costs, reduce contaminations off-site, and give rise to unique urban and landscape conditions along Lake Saimaa.



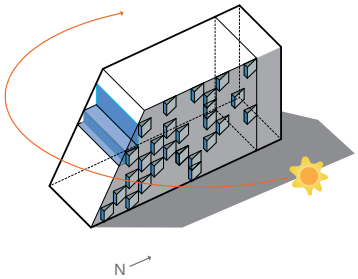



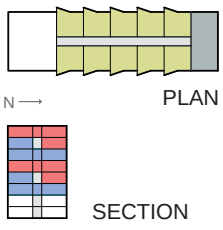

**2. Optimize Power Plant Performance:**
**Summer solar exposure improves efficiency of CHP plant**

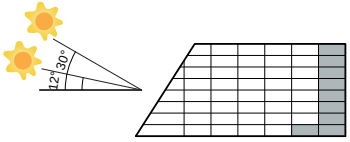
The extremely high solar exposure (long days) and low heating requirements during the summer mean that thermal collectors on individual blocks or buildings combined with local heat storage tanks can fulfil resident needs. This enables each zone to go off the grid for a period of the year reducing transmission loss and improving the power plant efficiency.

**2a. Rethinking principles of sustainable architecture for Northern latitudes**

The tried and tested principles of sustainable architecture in temperate climates must be rethought for Mikkeli where the average sun angle and solar exposure in winter is extremely low. In contrast to lower latitudes - where minimizing Eastern and Western facades to prevent heat gain is the priority, at higher latitudes and colder climates, it makes sense to maximize heat gain and solar exposure on the facades. This has both psychological and energy benefits. Allowing more daylight into the buildings is positive for the residents while maximizing solar exposure also reduces energy consumption through passive heating. Buildings are reoriented North-South and we propose an interlocking unit configuration within the residential towers. This unit typology reduces the circulation space by 50% and enables all units to have both an East and West façade.




SUMMER VS WINTER SUN ANGLE DETERMINES SLOPE OF SOUTH FACADE.

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**3. Diffuse + Hybridize:**
**Blur definition between separate functions and uses**

Traditional urban development to date has distinguished separate zones for buildings, urban fabric, civic spaces, landscapes, and water, thereby inducing environmental degradation and urban homogeneity. The proposed plan breaks down those distinctions—hybridizing urban, landscape, and hydrologic functions and spaces. A pixelated gradient is adopted as a form-giving and operation strategy, thereby creating vibrant new urban-landscape fabrics that breed new life for Mikkeli and Lake Saimaa.

Enhance environmental, social, and functional edges.


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MASTERPLAN 1:2000

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**1 OF 6**

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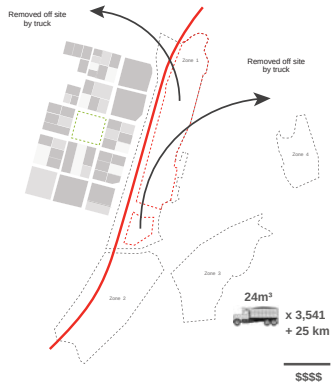
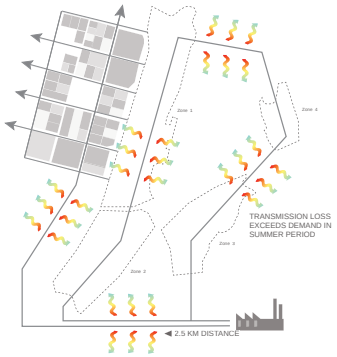
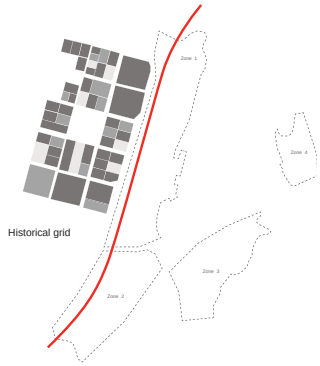
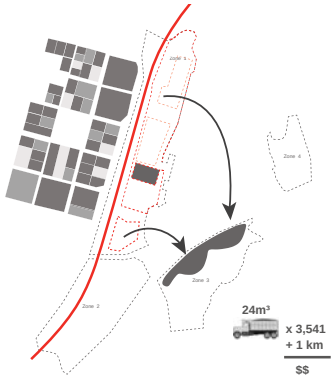
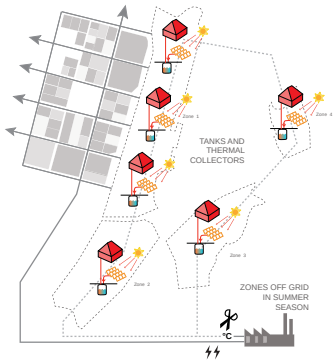




Enhance environmental, social, and functional edges.

**Relocate + Recycle**
**Contaminated soil on site**

The first move is to retain all contaminated soil on site, distributed between elevated plazas in Zone 1 and an enormous life-giving berm in Zone 3. By doing so, the scheme cuts down significantly on the petroleum and emissions generated by over 3,500 truckloads of soil proposed for relocation off-site. In this way, the preparatory stages of the project embody its broader environmental ambitions, save substantial hauling and disposal costs, reduce contaminations off-site, and give rise to unique urban and landscape conditions along Lake Saimaa.

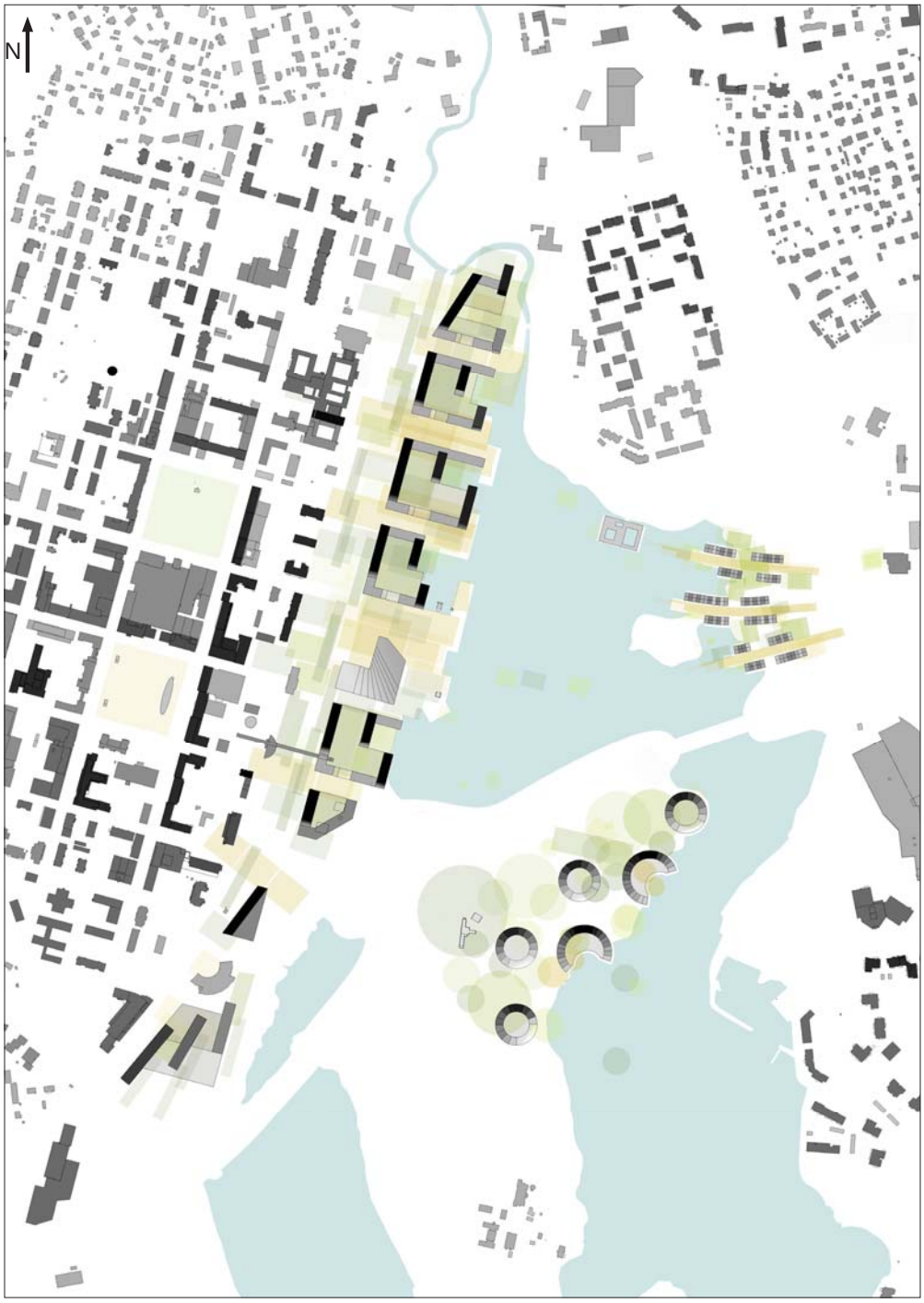
**Optimize Power Plant Performance**
**Summer solar exposure improves efficiency of CHP plant**

The extremely high solar exposure (long days) and low heating requirements during the summer mean that solar water boilers on individual blocks or buildings combined with local heat storage tanks can fulfill resident needs. This enables each zone to go off the grid for a period of the year reducing transmission loss and improving the power plant efficiency.

**Diffuse + Hybridize**
**Blur definition between separate functions and uses**

Traditional urban development to date has distinguished separate zones for buildings, urban fabric, civic spaces, landscapes, and water, thereby inducing environmental degradation and urban homogeneity. The proposed plan breaks down those distinctions—hybridizing urban, landscape, and hydrologic functions and spaces. A pixelated gradient is adopted as a form-giving and operation strategy, thereby creating vibrant new urban-landscape fabrics that breed new life for Mikkeli and Lake Saimaa.

GRANULARITY 1:4000




## GRANULARITY CONCEPT

The granularity of the new developments is intended to amplify the character of the urban fabric adjacent to each zone with several specific aims:

1. To structure the outdoor areas into clearly delineated public, communal and private spaces.

2. To create legible neighbourhoods with the granularity which are unique to each zone yet which compliment one another.

3. To utilize landscape elements and public space as connective elements which binds all the zones and the entire harbour together.

**Zone 1**
**Existing**

**Proposed**

**Zone 2**
**Existing**

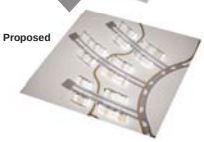
**Proposed**

**Zone 3**
**Existing**

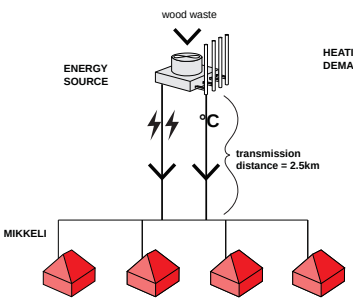
**Proposed**

**Zone 4**
**Existing**

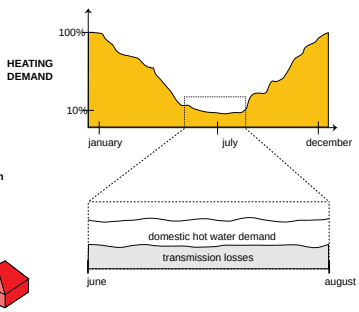
**Proposed**



**Energy**
**Current Annual operation**

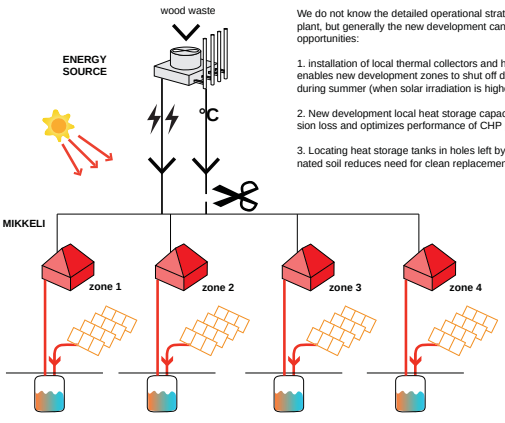



Mikkeli's current CHP plant and district heating network is extremely efficient for most of the year.




However, during the summer months, when solar exposure is extremely high and the energy demands of the city drop, a great deal of energy is wasted as transmission loss.

**Energy**
**Proposed Summer operation**




We do not know the detailed operational strategies for the power-plant, but generally the new development can provide the following opportunities:

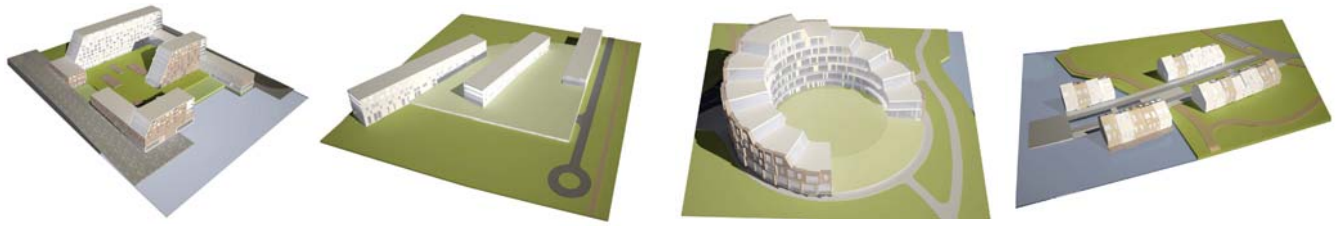
1. installation of local thermal collectors and heat storage tanks enables new development zones to shut off district heating supply during summer (when solar irradiation is highest)

2. New development local heat storage capacity reduces transmission loss and optimizes performance of CHP plant.

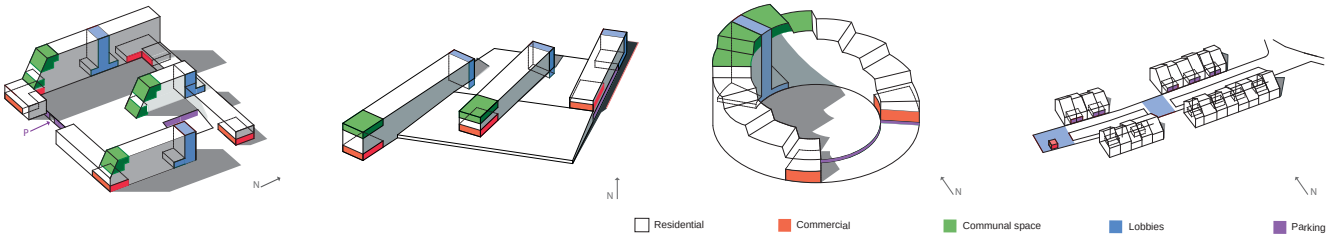
3. Locating heat storage tanks in holes left by removal of contaminated soil reduces need for clean replacement soil.

ZONE1 ZONE2 ZONE3 ZONE4

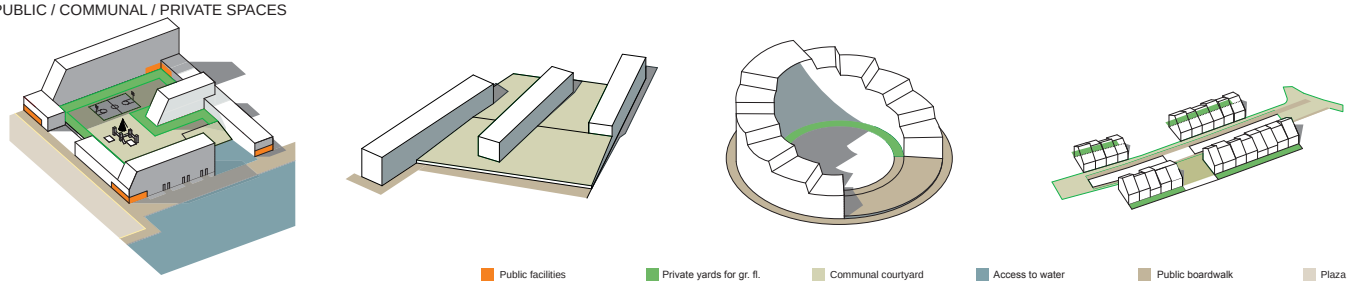
FACADE CONCEPT



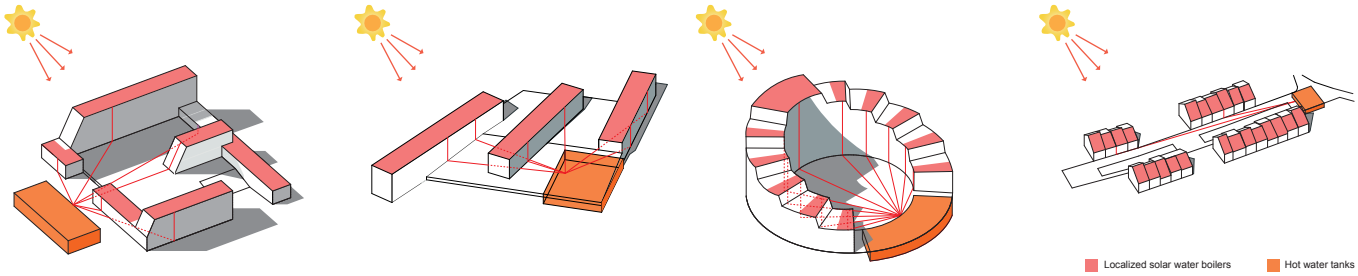
PROGRAM



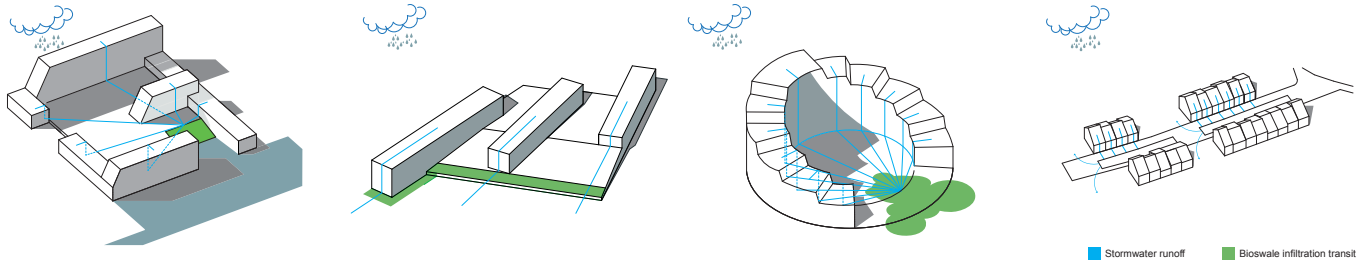

PUBLIC / COMMUNAL / PRIVATE SPACES



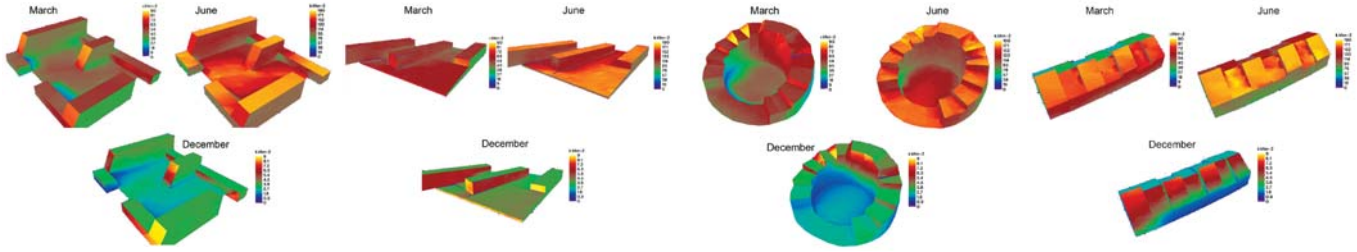

SOLAR BOILERS / HEAT STORAGE TANKS




STORMWATER / BIOFILTRATION




SOLAR ACCESS





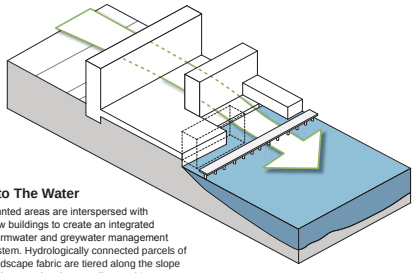

# BUILDING TYPOLOGIES MATRIX

MIKKELI HARBOR VIEW

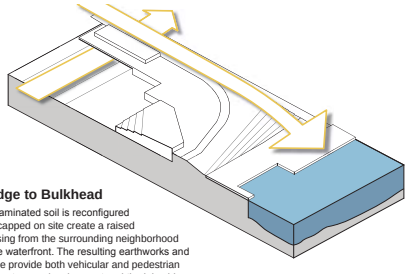
LAKE SAIMAA WINTER VIEW

LAKE SAIMAA ROUTE

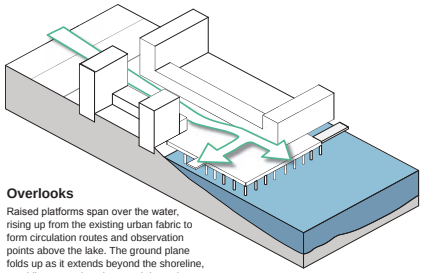
## HYBRIDIZING THE EDGE
Landscape and civic space systems



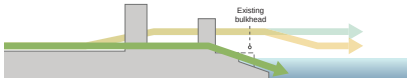
### Into The Water
Planted areas are interspersed with new buildings to create an integrated stormwater and greywater management system. Hydrologically connected parcels of landscape fabric are tiered along the slope to the water's edge to collect and treat runoff from streets and buildings before it enters the lake.



### Bridge to Bulkhead
Contaminated soil is reconfigured and capped on site create a raised crossing from the surrounding neighborhood to the waterfront. The resulting earthworks and bridge provide both vehicular and pedestrian access to new development and the lakeside. The ground plane steps down towards the water to end at the existing bulkhead, forming an amphitheater for performances and large events.



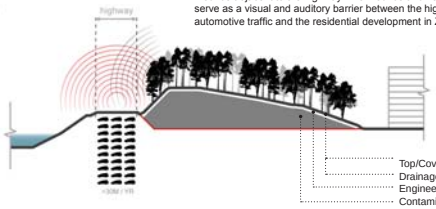
### Overlooks
Raised platforms span over the water, rising up from the existing urban fabric to form circulation routes and observation points above the lake. The ground plane folds up as it extends beyond the shoreline, providing sweeping views and dynamic public gathering spaces.

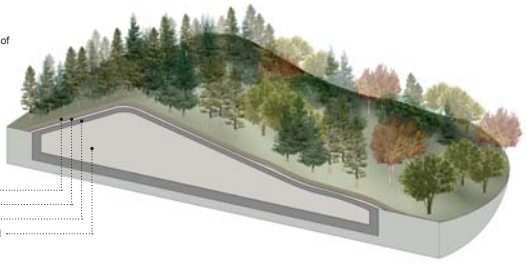



## SOIL ECOLOGIES
Repurposing contaminated landscape locally

### Redistribute and Reuse
Gross Soil Volume: 112,000 m
Contaminated Soil Volume: 84,000 m

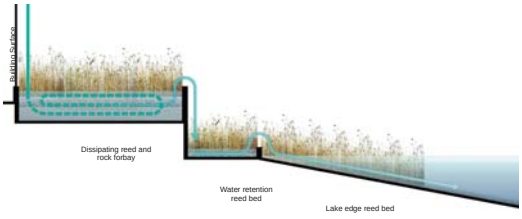
Contaminated soil is relocated and capped to create forested mounds adjacent to the highway. The mounds and vegetation serve as a visual and auditory barrier between the high volume of automotive traffic and the residential development in Zone 3.



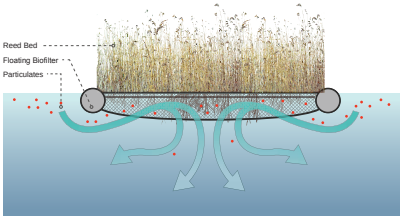
## WATER ECOLOGIES
Urban stormwater management and habitat creation

### Wetland Edge



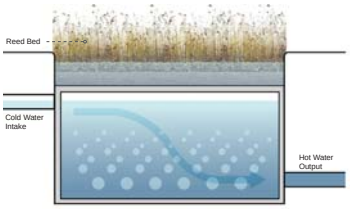

Greywater runoff collects in terraced reed beds, flowing through multiple stages of filtration before joining Lake Saimaa.

### Floating Wetland

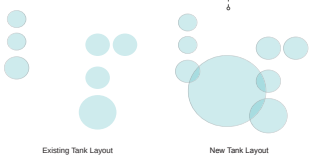



Floating reed beds drift across Lake Saimaa, removing particulate from the water. Beds can be released into the lake or docked for storage.

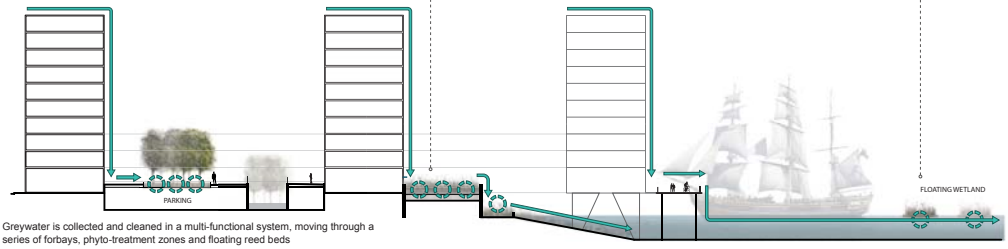
### Waste Treatment Wetland




Abandoned waste treatment tanks are reused to heat and contain district water. Wetland reed beds crown the tanks in Zone 3.



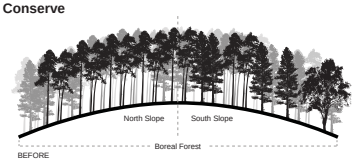

### Stormwater System



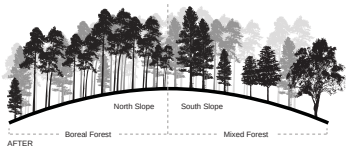

Greywater is collected and cleaned in a multi-functional system, moving through a series of forbays, phyto-treatment zones and floating reed beds

## FOREST ECOLOGIES
Climate change mitigation strategies

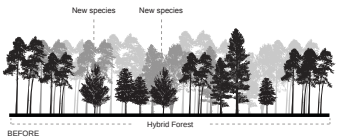
### Conserve

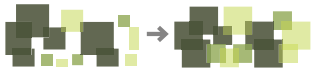



To counter climate change, conservation strategies will maintain the existing Finnish forest through the **thinning, transplanting and inoculation of certain trees.** The longevity of conifer and mixed forest species relies on strategic interventions to promote a healthy, rich forest that supports both new and mature growth.

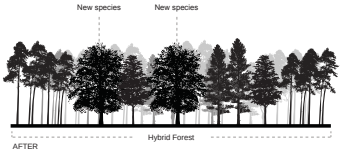



### Hybridize

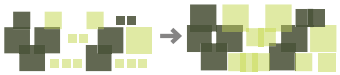


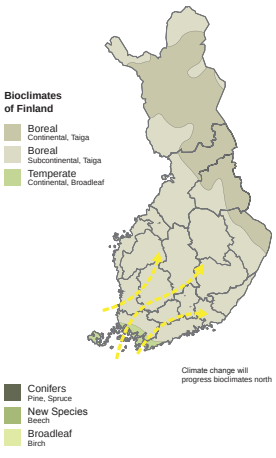
As climate change progresses, certain conifer species will become overwhelmed by rising temperature and infestation. Affected trees are harvested for energy, and a new tree species is introduced that thrives in the new, warmer climate. Thus, the Finnish forest becomes **a hybrid of native and non-native tree species.**




### Curate

Due to climate change, the Finnish forest will gradually transition from primarily conifer trees to a mixed broadleaf forest. Curation gently controls the path of the forest from conifer to broadleaf through careful monitoring and organization. This intervention **ensures the survival of the conifer species while embracing a new forest bioclimate.**

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